

# **VOLATILE ORGANIC CONTAMINANTS (VOC)**

## **COMPLIANCE SAMPLING COLLECTION GUIDE**

Kansas Public Water Supply Systems  
using the  
Kansas Health and Environmental Laboratories



Prepared by  
Kansas Department of Health and Environment  
Bureau of Water  
Public Water Supply Section

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## **VOLATILE ORGANIC CONTAMINANTS (VOC)**

Volatile Organic Contaminants (VOC) monitoring is part of the Phase II/V Rules. VOC monitoring requirements are stated in the Code of Federal Regulations 40 CFR 141.24, and can be found online at the Kansas Department of Health and Environment, Public Water Supply Section website

<http://www.kdheks.gov/pws/index.html>.

The purpose of this document is to provide a quick guide for collecting VOC samples. A Phase II/V Rules Survival Guide is available online at the KDHE, Public Water Supply Section website <http://www.kdheks.gov/pws/index.html>, and is a more extensive guide on all facets of the Phase II/V Rules.

If any of the VOC have results that exceed established trigger levels, more frequent monitoring will be required for that particular substance.

The Kansas Health and Environmental Laboratories (KHEL) is part of the Division of Environment under the Kansas Department of Health and Environment (KDHE).

The KHEL fee is \$100 for analyzing VOC compliance samples.

Table 1-VOC indicates the list of contaminants which may appear as results on the VOC sample result report.

<b>Volatile Organic Contaminants (VOC) Included in a VOC Sample Result Report</b>
1,1-Dichloroethylene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
1,2-Dichloroethane
1,2-Dichloropropane
1,2,4-trichlorobenzene
Benzene
Carbon Tetrachloride (aka Tetrachloromethane)
Cis-1,2-Dichloroethylene
Dichloromethane
Ethylbenzene
Ethylene Dibromide (EDB)
Monochlorobenzene
o-Dichlorobenzene
p-dichlorobenzene
Styrene
Tetrachloroethylene
Toluene
Trans-1,2-Dichloroethylene
Trichloroethylene
Vinyl Chloride
Xylenes

Table 1-VOC. Contaminants in a VOC Sample Result Report

### What is in a VOC Sample Kit from KHEL?

- Cooler shipping box
- Two 40 cc clear glass vials
- One vial of 50% hydrochloric acid
- Wrapped in foil: disposable glass pipettes and squeeze bulb
- Ice packs
- Green return shipping label
- Sample collection procedure sheet
- Sketch indicating procedure for adding 50% hydrochloric acid to sample
- Sample submission form

Sometimes a VOC sample kit and a triazine immunoassay (IA) kit are shipped from KHEL together in the same box. When this is the case, the following line will appear on the sample submission form under the heading Organic Analytical Tests Requested:

IA      (bottle ID number) Triazines – Immunoassay Method
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If the sample kit received also contains an IA sample kit, please refer to the compliance sample collection guide *Triazine Immunoassay Samples* for information on IA sampling.

Figure 1-VOC is a picture of what is contained in a VOC sample kit from KHEL. A barcode on the sample collection bottle label will have the system's KHEL account number and the bottle identification number. The green return shipping label is to be placed on the outside of the package when ready to ship the sample back to KHEL. The white sheet is the sample submission form that must be completed for each VOC sample.

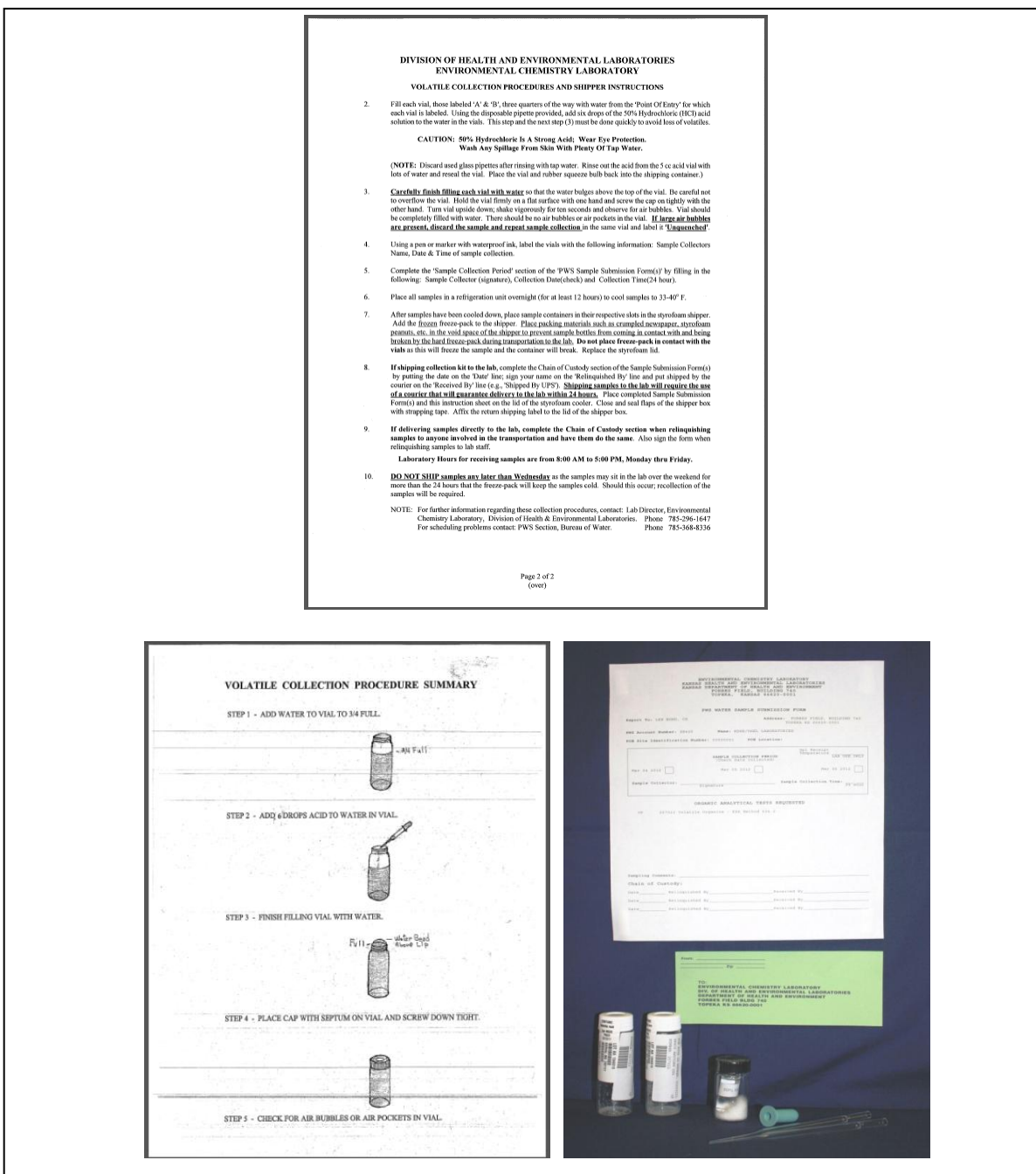


Figure 1-VOC. What Is Included in a VOC Sample Kit

Figure 2-VOC indicates an example of a VOC Sample Submission Form

<b>ENVIRONMENTAL CHEMISTRY LABORATORY KANSAS HEALTH AND ENVIRONMENTAL LABORATORIES KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT FORBES FIELD, BUILDING 740 TOPEKA, KANSAS 66620-0001</b>		
<b>PWS WATER SAMPLE SUBMISSION FORM</b>		
<b>Report To:</b> LEE BOND, CS	<b>Address:</b> FORBES FIELD, BUILDING 740 TOPEKA KS 66620-0001	
<b>PWS Account Number:</b> Z8400	<b>Name:</b> KDHE/DHEL LABORATORIES	
<b>POE Site Identification Number:</b> 00000001	<b>POE Location:</b>	

<b>SAMPLE COLLECTION PERIOD</b> (Check Date Collected)		<small>Spl Receipt Temperature</small>	<small>LAB USE ONLY</small>
Mar 04 2012 <input type="checkbox"/>	Mar 05 2012 <input type="checkbox"/>	Mar 06 2012 <input type="checkbox"/>	
<b>Sample Collector:</b> _____ <div style="text-align: center; width: 100px;"><small>Signature</small></div>		<b>Sample Collection Time:</b> _____ <div style="text-align: center; width: 100px;"><small>24 Hour</small></div>	

**ORGANIC ANALYTICAL TESTS REQUESTED**

VP      257022 Volatile Organics - EPA Method 524.2

**Sampling Comments:** \_\_\_\_\_

**Chain of Custody:**

Date _____	Relinquished By _____	Received By _____
Date _____	Relinquished By _____	Received By _____
Date _____	Relinquished By _____	Received By _____

Figure 2-VOC. Example of a VOC Sample Submission Form

## THE VOC SAMPLE SUBMISSION FORM IN DETAIL

Figure 3-VOC indicates the header of the form which indicates where the kit came from, and that the form is for use in submitting a VOC sample. The address in the header is the address of KHEL and will match the address on the green return shipping label that came with the kit.

ENVIRONMENTAL CHEMISTRY LABORATORY KANSAS HEALTH AND ENVIRONMENTAL LABORATORIES KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT FORBES FIELD, BUILDING 740 TOPEKA, KANSAS 66620-0001  PWS WATER SAMPLE SUBMISSION FORM
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Figure 3-VOC. Header of the Sample Submission Form

Figure 4-VOC indicates the system's address information printed on the form.

Report To: LEE BOND, CS	Address: FORBES FIELD, BUILDING 740 TOPEKA KS 66620-0001
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Figure 4-VOC. System Address on the Sample Submission Form

Figure 5-VOC has been highlighted to point out specific areas on the form. Fill out the form completely and neatly! If there is a problem with the sample, KHEL personnel will call the sample collector and try to resolve it. However, if they are unable to make contact the sample may be rejected and the system will have to re-collect the sample.

The part highlighted in green will indicate the system's KHEL account number.

The part highlighted in purple is the point-of-entry (POE) identification number where the sample must be collected. The POE site ID number should match a KDHE identification tag number that is physically at the site where the sample should be collected.

The part highlighted in yellow has often caused confusion for samplers. It is the Local Name for the collection site. In our data base, systems have the option of giving the POE site a "Local Name," and printed on the form in this location (if anything) is whatever the system requested as the Local Name.

PWS Account Number: 26400	Name: KDHE/DHEL LABORATORIES
POE Site Identification Number: 00000001	POE Location:

Figure 5-VOC. System KHEL Account Number and Collection Site ID

Figure 6-VOC has been highlighted to point out specific areas on the form. This section must be filled out for each VOC sample. Fill out the form completely and neatly! If there is a problem with the sample, KHEL personnel will call the sample collector and try to resolve it. However, if they are unable to make contact the sample may be rejected and the system will have to re-collect the sample.

The form presents the choice of three different dates for sample collection. Check the correct box for the date the sample is collected. If unable to collect on one of the three dates printed on the form, call the KDHE Public Water Supply Section at 785-368-8336 to see if it's possible for the scheduled collection dates to be changed. The gray highlighted area is where the sample collector should write their name.

The image shows a section of a sample submission form. At the top right, it says 'Spl Receipt Temperature' and 'LAB USE ONLY'. In the center, it says 'SAMPLE COLLECTION PERIOD (Check Date Collected)'. Below this, there are three date options with checkboxes: 'Mar 04 2012', 'Mar 05 2012', and 'Mar 06 2012'. At the bottom left, it says 'Sample Collector:' followed by a gray rectangular box for a signature, with the word 'Signature' written below the box. To the right of the signature box, it says 'Sample Collection Time:' followed by a line for hours and minutes, and '24 Hour' written below.

Figure 6-VOC. Three Different Choices for Sample Collection Dates  
On the Sample Submission Form

Figure 7-VOC has been highlighted to point out specific areas on the form. This part of the form lists the bottle ID number and the EPA approved Method that will be used to analyze the sample.

The part highlighted in blue is the identification number of the bottle. The bottle ID number on the container should match the bottle ID number on the sample submission form. If they don't match, call KHEL at 785-296-1620 and notify them of the situation.

The image shows a section of a sample submission form titled 'ORGANIC ANALYTICAL TESTS REQUESTED'. Below the title, it says 'VF' followed by a blue highlighted box containing the number '257022', and then 'Volatile Organics - EPA Method 524.2'.

Figure 7-VOC. Analysis Method and Bottle ID on the Sample Submission Form

Figure 8-VOC indicates that the form has space for sample collection notes. If the sample collector has any comments about the sample that they feel is important for the analysts at KHEL to know, they should write comments on the line labeled, “Sampling Comments.” The “Chain of Custody” lines only need to be used if the sample is passing from the sample collector to someone other than the courier service that will be delivering the sample to KHEL.

Sampling Comments: _____		
Chain of Custody:		
Date _____	Relinquished By _____	Received By _____
Date _____	Relinquished By _____	Received By _____
Date _____	Relinquished By _____	Received By _____

Figure 8-VOC. Chain of Custody Section on the Sample Submission Form

## COLLECTING AND SHIPPING THE VOC SAMPLE

VOC samples must be chilled before shipping. Before collecting a VOC sample, put the ice packs in the freezer. After collecting the VOC sample, immediately place the bottle in the refrigerator overnight. Make sure the sample does not freeze or the bottle will break.

The sample kit will instruct that the samples must be collected on one of three dates that fall on a Sunday, Monday or Tuesday. The collected samples must reach KHEL no later than Wednesday of the same week with only 24 hours in transit. Many systems pay for additional courier services (next day or priority shipping) to ensure their sample will be delivered on time. If unable to collect on one of the dates printed on the sample submission form, call KDHE, Bureau of Water, Public Water Supply Section at 785-368-8336 to see if it's possible for the scheduled collection dates to be changed.

### Collecting the VOC Sample

Read through the sample collection instructions and review the sketch for adding 50% hydrochloric acid to the sample. For questions or concerns about the sample collection process, call KHEL at 785-296-1620 for assistance.

VOC monitoring samples must be collected from finished water. Listed on the sample submission form is the POE site ID number from where the sample needs to be collected. At the site where the sample should be collected, there should be a KDHE ID tag with a number that matches the POE site ID number on the form.

### Shipping the VOC Sample

Place the sample and the freezer packs into the cooler in the shipping box. Place the completed sample submission form on top of the cooler lid. Tape the box shut. Secure the green return shipping label to the package. The sample must arrive at KHEL by Wednesday with only 24



hours in transit. Many systems pay for additional courier services (next day or priority shipping) to ensure their sample will be delivered on time.

### **SUMMARY OF VOC SAMPLING**

- Upon receipt of the sample kit, open and review the appointed sample collection date.
- Check that bottle ID numbers, KHEL account number, and collection site ID numbers are correct.
- Place the ice packs in the freezer.
- Review the sketch for adding 50% hydrochloric acid, and follow the sample collection instructions included with the kit.
- Fill out the sample submission form neatly and completely.
- Immediately after collecting the sample, place it in the refrigerator to chill overnight.
- Include the ice packs, the sample, and the completed sample submission form in the package. Paying for additional courier services (overnight or priority shipping) may be necessary to ensure the sample is delivered to KHEL on time.
- Calling KDHE with questions or concerns you may have is highly encouraged.

For questions about your VOC sample kit or the sample collection process, call KHEL at 785-296-1620.

For questions about your VOC compliance or compliance monitoring schedule, call KDHE's Bureau of Water, Public Water Supply Section at 785-368-8336.